# MANAGING GRASSLANDS FOR PROFIT

A guide to grazing management in the Southeast











Produced by USDA Natural Resources Conservation Service

in cooperation with

American Farm Bureau Federation American Farmland Trust

National Association of Conservation Districts
National Association of State Conservation Agencies
National Cattlemen's Beef Association
Southeast Conservation Buffer Campaign

Mississippi Chemical Corporation Tennessee Valley Authority

## Well Managed Grasslands = \$\$\$\$

Grazing lands are a very important resource in the eastern part of the United States. Thousands or affirm operations in the Southeast depend on grasslands for their livelihood.

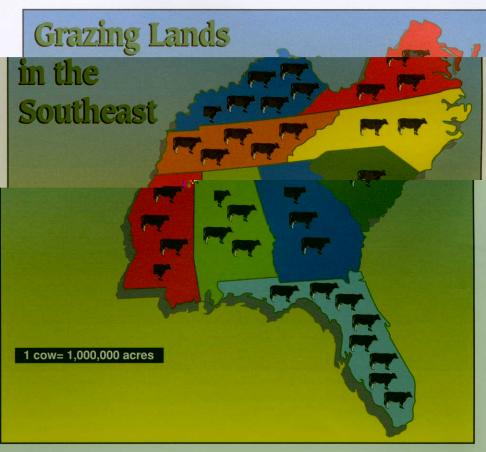
Grazing lands cover more than 34 million acres or 10 percent of the land in nine southeast states. The value of the forage alone ands \$4.44 hillion to the economy of these states. Grazing lands provide the forage that is the heart of the area's beef, sheep, goat, dairy and horse operations.

Whether you farm full-time or part-time, have numerous livestock or few, good grazing management can improve your bottom line. It also helps protect natural resources, improves water quality, benefits tourism and enhances the environment.

Grassland management is more than just moving livestock from one pasture to another. It involves choosing and managing forages, soil fertility, fencing, water development and distribution, harvesting, resting grasslands and much more.

This booklet discusses each of these subjects and takes you through a step by step process to develop a successful grazing plan that will work for you. It shows you options for grassland management, including different grazing systems.

Many producers are interested in taking care of grassland resources, but admit the bottom line is economics. Producers who have implemented some or all of the grassland management practices in this book have increased their profits.



To help producers improve grazing management, a national effort was started called the Grazing Lands Conservation Initiative (GLCI).

This initiative was started by a group of producers representing the following agricultural and conservation organizations:

American Farm Bureau Federation

American Sheep Industry

American Forage and Grassland Council

> National Association of Conservation Districts

National Cattlemen's Beef Association Soil and Water Conservation Society

The goal and purpose of this initiative is to ensure that technical assistance in proper grassland management is continued and enhanced.

For more information about grazing management, contact your state's Grazing Lands Coalition or local USDA Service Center.

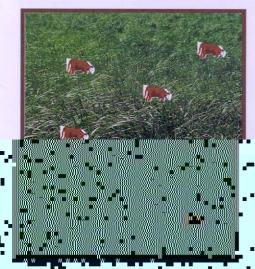


## USE A SYSTEMS APPROACH

Grazing systems range from continuous use of one pasture over a long period of time, to intense grazing of small areas for short periods of time. There are trade-offs for every system, and you'll have to decide which system works best for your operation. You may want to combine concepts and develop a system that works into your time schedule, livestock operation and available pasture.

#### Continuous grazing

is a one pasture system where livestock are left to graze in a large area for the entire season.

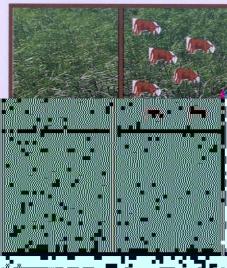


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#### Rotational grazing

is a system that uses more than one pasture. Livestock are moved from pasture to pasture according to forage growth and feed requirements.

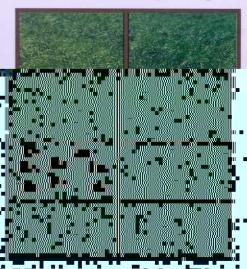


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#### Management intensive

grazing (MIG) is a system that breaks larger fields into smaller units called paddocks. Animals are moved frequently at high stocking rates. Each paddock is grazed, then rested before animals are allowed to graze again.



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## YOUR SYSTEM'S PARTS

A system is made up of different parts, and your system is customized depending on how you put the parts together. This publication will cover five components of a grazing system.

**Forages** 

Choosing and managing forages for your operation is key. You will want forages that meet the nutritional needs of your livestock and that are suited for

#### Water

Good water is essential for producing healthy livestock. As you begin to use more land for grazing, how you supply water to livestock in the field will become more of a challenge. Both natural (underground springs) and manmade (rural water, wells) water sources can be used effectively in grazing systems. Always strive to keep livestock out of drinking water supplies

#### **Fertility**

Like cropland, pasture also needs the right mix of nutrients to be productive. Soil testing to assess fertility levels and fertilizer needs should be done every 3-5 years.

#### Weed and brush control

Weed and brush control requires sound grazing management, occasional mowing and clipping, and herbicide use as needed. Early weed identification and control

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forage needs to ensure high quanty lorage wilen livestock nutritional requirements are high.

limit your grazing options.

fencing should be a goal, temporary fencing is often a good way to get started.

fence worked best for us -- it

Charles Bryson
Brevard, North Carolina

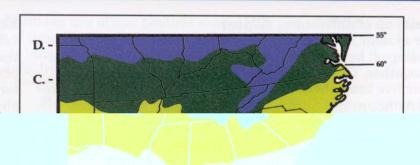
Grazing systems have several components in common, including forages, water, fences, soil fertility, and weed and brush control. What will make your system unique is how you integrate these pieces to fit your resource and operation needs.



# CHOOSING AND ESTABLISHING FORAGES

#### **Choosing forages**

Choosing the right forage species is an important part of pasture establishment and management. Select forages best suited to the temperature



### **Pasture Production Patterns**

COOL SEASON

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Michigan A.B.C.

My Mileston B,C,I

Sudangrand A.H.C.D

Mahilagrass v

Allen

OTTAILED

COMMERCIA INTERPRETATION

### Choosing forages for a year-long system

These recommended guidelines are for beef cattle and may vary for different livestock. They apply to the Mid-Atlantic Region and may vary south of Georgia.

Winter January 15-April 15 grass/alfalfa; orchardgrass/ ladino clover; and tall fescue/red or

# Use these guidelines to establish pastures

- Lime and fertilize according to soil tests.
- For conventional seeding, work a seedbed on the

water quality.

Forage

In addition, rotational grazing, systems are designed to optimize forage utilization. They extend the grazing season and increase carrying capacity of the land. They also increase profits.

Full Seeding

growin, resis should be shorter to keep plants from going to seeu. Longer rests periods are needed when pasture growth slows.

Legumes need sufficient rest during the growing season to

days. This would require

Fix to move livestock according withategress branch not just calendar days. If sufficient, plant cover is left, pastures will recover faster and produce more usable forage. If pastures are allowed to rest too long, forages become more mature and less palatable for grazing animals.

Allow regrowth

# **Forage Guidelines**

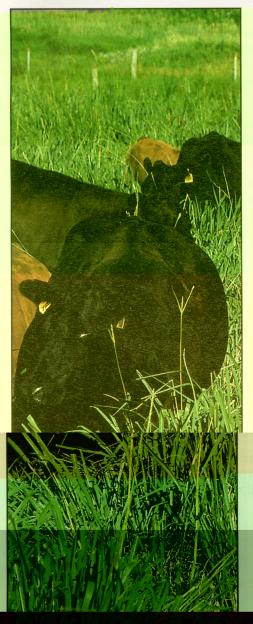
Graze no

Cut for

Begin

	Rate	grazing	closer than:	2	to this height before
Cool season	# PLS/acre:	at	than:	at:	killing frost:
Kentucky bluegrass	15	4-5"	2"	Not recommended	4"
Orchardgrass	5	6-8"	4"	Boot to early head	6"
Tall fescue	10	6-10"	4"	Boot to early head	6"
Timothy	3	6-10"	3"	Early head	7"
Timothy	3	0-10	3	Larry ficad	/
Warm Season					
Common bermudagrass	5-10 hulled	5"	2"	3-4 week intervals	NA
Hybrid bermudagrass	<sup>1</sup> 5ว <sup>า</sup> บน่าลงากกา	wws 6"	2;;	23/4' week intrervals	NA.
Bahiagrass	15	6"	2"	Boot to bloom	NA
Native Grasses					
Switchgrass	5	16-20"	6"	Early head	6"
Big bluestem	7	10-16"	3"	Boot	6"
Eastern gamagrass	10	18"	6"	Boot to early head	8"
Legumes					
Ladino clover	0	1// 1-1	2"	3/4 to full bloom	8"
Eddino clovel	8	1/4 bloom	2	3/4 to full bloom	ð

Notes: Seeding rates can generally be reduced by 25% when grasses are mixed with legumes. Hay height is for first cutting.



# Checklist for keeping a good grazing system

- ✓ Graze to proper height at the right time. Use a "take half, leave half" guide to grazing, or consult the forage guidelines chart (page 8).
- Check forage and livestock at regular intervals and move livestock according to the forage.
- ✓ Allow pasture to rest periodically. Don't leave livestock on pastures being rested.
- ✓ Top-dress with fertilizer according to soil tests.
- Maintain good fences.
- Mow or hay paddocks before grass has set seed heads. Weeds or weedy grasses should be mowed when they reach a height of 6 inches, before they begin to compete for moisture and seeds mature.
- Remove or drain above ground pasture water systems in the winter and restore in the spring.
- Review and change your rotation schedule to match changes in herd size, feed quality, and number of available grazing acres.



Grazing rule of thumb for cattle: If you can't see the cow's eyes (above), the grass is too tall. If you can see her nose (below), it's too short.



"Developing a grazing system allowed me to save one year in hard labor increased the

profitability of my operation and provided a mure desirable lifestyle."

Halifier, North Carolina

# DEVELOPING, STORING AND USING GOOD WATER

General Livestock Water

several methods to distribute water to paddocks. It is preferable to have water available in each

Distributing Water

#### Moving livestock to water

If it is not possible to install water in each paddock, it will be necessary to bring livestock to the watering site. Water is usually accessed through lanes which connect paddocks to the water source.

Lanes should be 16 to 24 feet wide. Frequently used lanes should be installed on the contour as much as possible.

Gateways into lanes should be placed in the corner of the paddock to which livestock would naturally flow. Setting up paddocks and lanes to fit normal animal movement reduces fence maintenance and enhances system performance.

Cattle use stream crossing to move from paddock to paddock and through a riparian buffer.



### **Buffers protect water quality**



Installing buffers along streams, can help improve water quality for your livestock, your family and others downstream.

Livestock are attracted to areas along streams because they provide water, shade and succulent forage during dry periods. But, uncontrolled

access can cause water touling,' streambank erosion and lower vegetation quality.

A healthy riparian area helps prevent streambank erosion and water quality problems. Designating a special area along the stream as a buffer will improve and enhance any grazing system.

Livestock should be restricted from riparian areas. This will allow trees and low growing vegetation to thrive. Cost sharing is available to establish buffers and fencing through several USDA conservation programs. Contact your local USDA Service Center for more information.

In addition to cleaner water, other benefits of buffers include:

- Fences located away from the stream are less likely to be damaged by flooding.
- Weight gains are maintained by keeping livestock grazing instead of congregating in streams.
- Manure is deposited on the land where nutrients can be utilized, instead of in streams where it becomes a pollutant.
- Health hazards are reduced for livestock, saving money on veterinary bills.
- Improved food and cover is available for wildlife like quail and other game animals.
- Animal waste and bacteria in streams is reduced, protecting human health.

# FERTILITY IS IMPORTANT TOO

Soil fertilization can help you improve forage quality, yield and diversity. Fertilizing and liming promote a vigorous, healthy stand.

Soil sampling and testing are critical to effective pasture fertility management. Soil testing will help you assess available nutrients for the forage crop and determine how much fertilizer and lime to apply to each pasture to meet your yield goals.

For more information on how to take a soil test, contact your local USDA Service Center or Extension office.



#### Nitrogen

The most commonly applied fertilizer in a non-legume pasture is nitrogen (N), some of which is applied naturally through animal manure. If you begin to see "cow spots" or much taller, greener grass around "cow pies," it may mean the pasture is nitrogen deficient.

Nitrogen applied in late summer can help provide more forage and extend grazing into December. For the best results, apply nitrogen in August and rest pastures until late September or early October. A wet fall will enhance forage growth if fertility is adequate and in a dry fall the nitrogen will carry over to the spring.

### **Phosphorus and Potassium**

Late summer and early fall is also a good time to apply phosphorus (P) and potassium (K) to grass or grass legume pastures. Soil tests are your best guide in determining what is needed.

#### Liming

Lime is often needed in pastures to neutralize acidic soil and improve pasture productivity. Plants, especially legumes, are unable to use nutrients in soil that is too acidic. Micronutrients, which are obtained through liming, are essential for normal growth of pasture plants to meet livestock needs. Lime according to soil test recommendations when pH is below 6.0, or consult your USDA Service Center or Extension office for a general rate of application.



Applying fertilizer (left) and lime (below) are steps often needed to improve pasture productivity.



Taking a soil sample is a critical step in developing a sound fertility management program on your pasture.

## CONTROLLING WEEDS AND BRUSH

Controlling weeds and brush in pasture will increase forage production, carrying capacity and profits.

Weeds and brush compete for valuable nutrients and water. Every pound of weeds means fewer pounds of forage. Grass in weed-free pastures form thicker stands, that cattle and sheep tend to graze more uniformly.

Effective management of weeds starts with the identification of undesirable plants. Paddocks should be scouted regularly during the growing season and treated with appropriate weed control practices.

#### Prevention

Goo land hanagement will help keep desirable vegetation healthy and weeds under control. Dense forage stands can prevent desirable species from becoming established. It is important to provide the proper soil pH and fertility levels for desired forage species both during establishment and later maintenance. Properly timed grazing also helps control weeds.

# Livestock grazing Graze weeds before they can go to seed. Livestock can spread



Weed free pastures are a result of good management.

Clipping in the fall can help control tree seedlings such as buckbrush, hazelbrush and others. Some regrowth may occur, but clipping can reduce the chances of brush taking over the pasture.

Clipping also weakens weeds as they go into winter, making control easier the next year.

#### Chemical herbicides Herbicides are safe and

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# GOOD FENCES MAKE GOOD PASTURES

Fences are a key component of any pasture management system. Planning and controlling livestock movement allows you to ensure adequate resting and grazing of pastures. Establishing fencing that meets your operation's needs can help you more effectively manage your system.

There are many types of fences available, varying from permanent to temporary, and a wide ... range of costs. When saled in a weavnet hour or almored unce ... fence for your system consider:

- ✓ Topography
- Livestock
- Cost
- Availability of power
- Maintenance
- Flexibility

Other considerations include: establishing a manageable number of paddocks to evenly distribute forage supply; placing gates to make moving livestock easy: and fencing ditches and gullies separately to minimize potential erosion problems. A holding pen

with electric fence may be needed to train livestock. Special fencing considerations may be needed to prevent problems with predators in grazing systems for sheep.

#### Portable electric

Portable electric fencing is lightweight, and easy to move and set-up. It is reasonably priced. although you must also consider costs of electric or solar power. Temporary electric fences

regular maintenance.

#### Hi-tensile wire

High tensile wire is suitable for permanent fence on property boundaries or internal paddocks. 3-5 wire fences are commonly used with electric fence chargers. 7 or more wires may be needed if fences are not electrified. Installation costs more, but long term maintenance costs less.

#### Barbed wire

Barbed wire fencing controls cattle and sheep very well, but may cause injuries to horses. Labor and material costs are high, and periodic maintenance is required.





When using electric fencing, it's important to select an energizer large enough to meet your system's needs.

# RELATIVE COST\* OF VARIOUS FENCES

Cost range per 1/4 mile (1,320 feet)

cost range: \$1,500-\$2,000

47" woven wire + barb. 4 steel:1 wood linepost, 12' 47" woven wire + 1 barb, all wood line posts, 12'

cost range: \$700-\$1000

4 - barb, 15 ga, 4 steel: 1 wood linepost, 20' w/stav

4 - barb, 12.5 ga, 4 steel: 1 wood, 15' w/stay

5 - barb, 15 ga, 4 steel: 1 wood, 20' w/stay

5 - barb, 12.5 ga, 4 steel: 1 wood, 15' w/stay

cost range: \$100-\$1000

8 - strand 12.5 ga, hi-tensile,+, 1 wood linepost:1 fiberg., 20'

5 - strand 12.5 ga hi-tensile. 1 wood: 3 fiber., 30'

4 - strand 12.5 ga hi-tensile, 1 wood:9 fiberg., 30'

3 - strand 12.5 ga hi-tensile, 1 wood: 9 fiberg., 40'

1- strand 12.5 ga hi-tensile, 1 wood: 9 fiberg., 50'

cost range: \$100 - 115

1 - strand 16 ga cable, all 3/8" fiberg., 50', w/reel

1 - strand polytape w/step-in posts

1 - strand polywire w/ step-in posts

labor and materials.

### THINK THROUGH VOUD CDAZING SYSTEM

offers technical assistance for pasture improvements. NRCS can also help you through the fol lowing planning process that serves as a roadmap for achieving pasture and livestock goals.

1 Identify your problems.

Are your pastures overgrazed or is there to much pasture for the

and recommended grazing pat-

There are various new options for fencing and watering to think about. Fertility and weed/brush control are also areas to consider.

5 Choose a course of action.

It's a good idea to decide on a

Inventory the resources.

Make your plan

Sot your male

Study your chaires

Continually evaluate, adapt when necessary.

# PUT YOUR GRAZING SYSTEM ON PAPER

As you can see from previous pages in this publication, grazing systems are made up of several components. To maximize the use of land and the management of grass and livestock, you'll want to have a written blueprint of your system—a plan. This plan can be in a number of forms, but should include certain items.

Inventory

Write down the number of acres, types of grass, soil types, health of the grass (excellent, fair, poor), sources of water and number of livestock in each pasture. This information gives a good picture of where you are.

Your goals

Think about what you want to accomplish. Do you want to:

✓ Graze more animals?



Limiting access to streams reduces health hazards for livestock and protects streambanks from erosion.

# Matching needs to your goals

The next step is to decide how to meet your livestock needs and start reaching your goals. If you aren't'comorrable uding

this step yoursen, ideal NRCS, Extension or other pasture management professionals can help.

# Remodeling your pasture

Consider the pasture plan to be a remodeling plan for your land. You may complete it all in one year, or take several years to build the system you want.

Consider your labor and management time available, because intensive grazing systems only work if they are managed properly. You're the only one who can really decide how much time you have to spend on your system.

Producers experienced in intensive grazing say live-

Paddock 5
Paddock 2
Paddock 6
Paddock 3
Paddock 4
Paddock 7
Paddock 10
Paddock 8

\*Nose pump waterer, piped from a large pond.

stock catch on quickly and once they are trained it doesn't take long to move them from paddock to paddock. If you are accustomed to regularly checking your livestock now, you may find that intensive grazing may not take a whole lot more time. Most people who have experience with pasture management systems advise others to start slow and build on their systems. This allows you to make adjustments and work into the management process.

#### **Record Keeping**

Keeping accurate records is a continual process in effective pasture management. The example on the following page (18) is a good place to start. You may also want to keep informal records of livestock type and number, forage height on the dates in and out of each paddock, and any other comments that may help trigger your memory in the future. This will help you track conditions of pastures and effectively manage each paddock over the long term. It is also important to accurately track livestock performance. Local Extension Service offices, veterinarians and others can assist you to develop and use a livestock record keeping system.

# MAKING A PLAN AND KEEPING RECORDS

### Pasture forage assistabilitary Palore

	Field	Kind of Forage	Acres	Yield	Animal Unit Months (AUMs)												
Number				AUMs*/Acre	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
	1	Fescue	25	5.8			6	19	35	25	14-	8-	16	14	8		145
	2	Bluegrass/Clover	18	6.5			5	14	35	26	15	7	10	5			117
	3	Orchardgrass/Clover	16	6.5				16	32	22-	14	7	9	4			104
	4	Fescue/Clover	12	6.0			2	9	20	16	9-	4-	6	3	3		72
	5	Big Bluestem	15	6.6					-	-	35	35	29	-	-		99
	Total Available						13	58	122	89	87	61	70	26	11		537

<sup>\*</sup>An Animal Unit Month (AUM) is the amount of forage required by an Animal Unit (AU) for one month.

### Hay or supplemental forage availability - Table 2

Field	Kind of		Estimated Yield (Tons)		Total Animal Unit					
Number	Forage	Acres	Per/Acre	Total	Months (AUMs)	Growth & Stage for Harvest				
6	Alfalfa	15	5.0	75	Bud stage for first cutting; One tenth bloom for late cutting					



# GETTING STARTED WITH YOUR GRAZING SYSTEM

Often the hardest part of making changes in an producers, talking with neighbors who are using

# PASTURELAND RESOURCES

The Natural Resources

Conservation Service has specialists who can help you plan and carry out your grazing management plan to meet your resource and economic goals.

NRCS can also help you determine if your operation is eligible for cost-share.

Contact your local USDA Service

Center.

Your local Soil and Water

provide technical help through state programs. Some counties have cost share available for pasture systems. The Soil and Water Conservation District is usually located in the same office as the NRCS.

**Extension Service** can help you evaluate the condition of your forage and livestock. The Service has education and information material pertaining to livestock and pasture management.

They can also provide information about scheduled field days, workshops, and other events in your local area. Contact your local Extension Service office.

The **Forage and Grassland Council** located in each state is a nonprofit, educational organization of forage and livestock producers, and includes representatives from industry and

public service sectors. Check with your NRCS office for the address of the Council in your state.

Resource Conservation & Development Councils apply for grants to carry out grazing lands educational projects and demonstrations. Some Councils also have grazing lands specialists who provide technical assistance. Check with your local NRCS office for information on contacting RC& D Councils.

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